

REMARKS

Claims 1 and 3-8, as amended, are before the Examiner for consideration. Claim 2 stands withdrawn.

Applicants thank Examiner Troy Chambers for his courtesy and time in granting a personal interview on March 12, 2003 with applicants' representative, Robert N. Wieland. The Interview Summary of the same date summarizes the discussion at that meeting.

Claim 1 has been amended for the purposes of clarity. The claim now (1) indicates that the splinter-generating shell is an "inner" shell, (2) defines that inner shell, (3) gives the operation of the mechanical stress differential means, and (4) calls for spatial distribution of the stress differential across the inner shell. See the specification at page 1, line 30, describing causing a stress differential at the outer surface of the shell to "induce" splintering (wherein "shell" is previously described as being an inner shell located inside an outer case). Minor, self-evident changes have been made in claims 3 and 6.

1. Claims 1 and 6-8 were rejected under 35 U.S.C. §102(b) over Lips et al. U.S. Patent 5,131,329. Applicants respectfully submit that the claims as amended patentably define over the reference.

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The presently claimed explosive ammunition having a fragmenting structure comprises an explosive charge located in an inner splinter-generating shell, an outer case enclosing the inner shell, and means for generating a mechanical stress differential at the outside surface of the inner shell during ammunition initiation located between the inner shell and the outer case, wherein the stress differential induces splinter generation and is spatially distributed across the inner shell. This arrangement is nowhere disclosed or suggested in any of the cited references.

Lips '329 is said to disclose outer case 3 and steel inner case 4 having square structured zones 7 on its outer surface with an explosive charge contained therein.

The Examiner argued that Lips '329 anticipates applicants' "means for generating a mechanical stress differential at the outside of the (inner) shell" in claim 1, because, in the Lips '329 device, initiation of the explosive charge inside inner case 4 causes it to bulge and thereby momentarily impart pressure through its ribbed outer surface against the inner wall of outer case 3. Simultaneously, inner case 4 momentarily receives an inwardly directed component of action-reaction forces directed back against the ribbed outer surface of inner case 4, thereby allegedly causing a stress differential in inner case 4. The Examiner inferred, but

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did not say, that such stress allegedly would be sufficient to induce splintering of the inner shell.

The Examiner explained that Lips '329 necessarily discloses a means for generating stress at the outside surface of inner case 4, even if only initially and momentarily, as a direct result of the physics involved, i.e., action-reaction components of force.

While there may be some amount of stress generated by an inwardly directed component of such action-reaction forces, there is nothing in the record describing the magnitude (or characterizing the effect) of such inwardly directed force component. While such inwardly directed component may induce some magnitude of stress on inner case 4, Lips '329 does not describe such stress as sufficient to "induce splinter generation of the inner shell", as affirmatively recited by applicants' claim 1. There is nothing in the prior art of record supporting the suggestion that every stress received by such an inner case under similar circumstances will actually "induce" splinter generation thereof. If such a position is maintained by the Examiner as a basis for rejection of the claims, applicants respectfully request notification of a reference in the prior art substantiating that such inward component of action-reaction forces would necessarily

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"induce" splinter generation of the inner shell. No such prior art is presently in the case.

In fact, the only discussion in the prior art of record regarding stress differential inducement is the statement in Lips '329, column 3, lines 41-57, and lines 52-57, that the outward forces cause stress differential on "outer" case 3. Lips '329 says nothing about causing any stress differential on "inner" case 4, and therefore, does not characterize the effect of any inwardly directed reaction component of the corresponding outwardly directed force against outer case 3.

Applicants' claim 1 affirmatively recites three separate structural elements configured for interacting with each other so that two of them impart sufficient force on one of them, the inner shell, to cause a stress differential of such magnitude that induces splinter generation of the inner shell. Claim 1 recites structure for achieving impact on the outside surface of the inner shell sufficient to induce splintering. Lips '329 does not disclose or suggest any such structure or alternative structure providing the same effect.

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For the foregoing reasons, Lips '329 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Lips '329 that would have suggested the desirability of modifying any portions thereof effectively to suggest applicants' presently claimed invention. Claims 6-8, which depend from claim 1 is allowable for the same reasons as claim 1. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

2. Claims 1 and 3-5 were rejected under 35 U.S.C. §103(a) over Lips '329 and Koontz et al. U.S. Patent 5,337,673. The rejection is respectfully traversed.

The Examiner admits that Lips '329 does not disclose a netting located between the inner and outer case, and cites Koontz '673 for teaching netting embedded in the case. However, Koontz '673 does not provide a teaching that overcomes the deficiencies of Lips '329 described above.

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Neither Lips '329 or Koontz '673 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicants' claimed invention. Nor is there any disclosure or teaching in either of these references which would have suggested the desirability of combining any portions thereof effectively to suggest applicants' presently claimed invention. Claims 3-5, which depend from claim 1, are allowable for the same reasons as claim 1. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

All claims 1 and 3-8 are now proper in form and patentably distinguished over all grounds of rejection cited in the Office Action. Accordingly, allowance of all claims 1 and 3-8 is respectfully requested.


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Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicants' undersigned representatives. If the only barrier to allowance is the presence of non-elected claim 2, the Examiner is authorized to cancel the claim for that express purpose.

Respectfully submitted,

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Date


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Attachments: Version with Markings
 to Show Changes Made

Attorney Docket No.: CELA:083

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

CLAIMS

1. (Twice Amended) An explosive ammunition having a fragmenting structure comprising:

an explosive charge located in a splinter-generating inner shell;

a case enclosing the inner shell; and

means for generating a mechanical stress differential at the outside surface of the inner shell during initiation of explosion of the explosives explosive charge, wherein

said inner shell comprises an outer surface for transmitting a first force during ammunition initiation to said means for generating a mechanical stress differential,

said means for generating a mechanical stress differential is for transmitting said first force substantially to an inner surface of the outer shell and for transmitting a second force substantially to said inner shell outer surface, thereby generating mechanical stress differential therein, wherein

said stress differential enhances is spatially distributed across the inner shell and induces splinter generation of the inner shell and is spatially distributed across the shell.

2. (Cancelled) Explosive ammunition as claimed in claim 1, characterized in that the means creating a stress differential include an inside surface of the case fitted with an array of salients of which each related mesh is hollow and is bounded by a salient rib making

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contact with the shell, such a configuration assuring weakening this shell during said initiation along the ribs to generate splinters.

3. (~~Twice~~ Thrice Amended) The explosive ammunition according to claim 1, wherein the means for generating a stress differential comprises a netting solidly joined to the case or placed between the case and the shell, said netting constituting ~~the~~ a weakening array.

4. (~~Twice~~ Amended) The explosive ammunition- according to claim 1, wherein the case is made of plastic.

5. (~~Twice~~ Amended) The explosive ammunition -according to claim 3, wherein the netting is imbedded in the case.

6. (~~Twice~~ Thrice Amended) The explosive ammunition according to claim ~~4~~ 3, wherein the array is fitted with square elementary meshes.

7. (~~Twice~~ Amended) The explosive ammunition according to claim 1, wherein the shell is made of steel or tungsten.